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# The value of didactic-pedagogical skills of canoe-polo technical

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## ABSTRACT

Vastola R, Sgambelluri R, Di Tore S, Buglione A, Prosperi R, Cecoro G, Carlomagno N, Sibilio M. The value of didactic-pedagogical skills of canoe-polo technical. *J. Hum. Sport Exerc.* Vol. 7, No. 2, pp. 489-494, 2012. Canoe-polo is a team sport. It is played in over 50 countries around the world. The role of coach concerns not only the technical – tactics skills but also the managerial, organizational and logistical skills of the players. From the point of view of teaching methodology, the canoe polo coach must be aware of the fact that his role always involves the role of teacher, and to excel in the performance of this function, must possess a number of characteristics that define the area of his specifically pedagogical jurisdiction. The aim of the research is to define the elements characterizing the performance model in canoe polo that are the most important in developing a technique, tactics and conditional plan in order to provide the coach the most appropriate knowledge to organize a didactically coherent process to the requires of the group – team. The experimental research was carried out on two subjects of the 2010 Italian champions (CN Posillipo in Naples), during eight matches of the Italian Canoe Polo Championship. The research project provided for the monitoring of the heart rate (HR) during the races by teams polar heart rate monitors system, with a sampling rate of 5s per subject. The acquisitions were subsequently analyzed with a dedicated software Polar Pro Trainer 5.2. The results in this pilot study show, canoe-polo like many other team games where you use a ball, it is an intermittent sport with a high metabolic intensity (4.8). **Key words:** CANOE POLO, TECHNICAL, PEDAGOGICAL SKILLS, DIDACTIC METHODOLOGY

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## INTRODUCTION

There are few scientific studies conducted in Italy on canoe-polo, although in recent years it has become more popular; nevertheless there is news about it as early as the nineteenth century with the publication about *"Punch or the London Charivar"* of xylograph entitled *"Polo on the sea"* where there are men and women, standing on canoes playing with a paddle and a ball (McCarthy, 2000).

From this event, canoe polo in different European countries, up to the date on which the 1987 International Canoe Federation (ICF), promotes the first official meeting in Duisburg to set rules and under the jurisdiction of the ICF, has grown considerably.

Nowadays, it is played in over 50 countries and the ICF and the European Canoe Association (ECA) organize every 2 years, alternately, World and European championships. In 2005, the discipline became part of the World Games, a multi - sport event under the high patronage of the International Olympic Committee (CIO). When talking about sport, we know that more than half of the training is aimed at the development of physical conditions, and in particular of motor skills. It is not rare that coaches ignore the rational methodology of training and the athletic training related to the specificity (Lombardozzi, 2001) of the discipline (Verchoshanskij, 2001), resulting in an ineffective expenditure of energy in the athletes.

The concept of specificity if it is related to sport and in particular the specificity of motor skills is the possibility that these skills can be optimally implemented in the sport for which they were devised. The performance model is the analysis of these factors that have directed or indirect on sport performance. For Platonov (2004) the model is *"a representation, a scheme that aims to reproduce the essential elements of a process, the structural characteristics of an object, the relationships between different elements of a system"*.

The study of the performance model identifies the elements of specificity of each sport, a fundamental condition. The need to understand what the recurring factors in the performance is aimed at the development of an adequate planning and application of proper training methods.

Canoe-polo is a game in which the abilities to adapt to situations that change rapidly and continuously, add the requirement of technical-coordination capacity in the management of four key elements: canoe, paddle, ball and the opponents.

Notwithstanding its evolution in the sporting world, it has not been matched by an increase of scientific publications, and the lack of a performance model does not help the coaches in the implementation of training programs for the specific characteristics of sport in the choice of a proper *didactic methodology* in order to develop motor skills, learn new techniques and tactics in line with the energy needs of the discipline.

In fact, a proper planning of training should not be separated by a prior exploration of the skill base of the subject, and then proceed to an adequate planning of training (Weineck, 2001).

The coach, in fact, must have knowledge about the specificity of the discipline that allows him to play a role characterized by complex functions and activities covering different fields of study: *technical, educational, psychological and managerial*.

From the point of view of a teaching methodology, the canoe polo coach must be aware of the fact that his role always involves the role of teacher, and to excel in the performance of this function, must possess a number of characteristics that define the area of its specifically pedagogical jurisdiction: *to be able to relate to athletes and communicate effectively with them, giving appropriate instructions and directions; know how to motivate athletes to continue training by continually striving to learn, able to analyze and to interpret the needs of athletes able; to select the learning objectives in order to build training situations that facilitate learning; able to test and evaluate the effectiveness of teaching in order to produce a concise documentation about the activities that summarizes own choices, the changes compared to the original hypothesis and results* (Madella et al., 2000).

The canoe polo coach has an important role in the group-team for the evolution of the performance of his players and the exercise of his functions puts him in constant contact with them not only from a sporting perspective, but also from a human one.

In fact, he should possess the means and experience to manage the athletes and their behavior as a person and as a sport, considering the whole group that has set up a partnership, seeking to know the character, the degree of mutual tolerance, the possible conflicts, such as fears, and show how much confidence they have in themselves and their teammates, to which stimuli have positive reactions and to highlight such negative reactions and attitudes which take in unexpected events or repeated situations.

The role of canoe polo coach therefore goes beyond the narrow technical - tactics skills and embraces a wide range of problems inherent to managing humans, but also the organizational and logistics of the players.

The figure is expected to know to play the role of positive leader with the group-team, capable of bringing security and achieve victory, with competence and timeliness by implementing the most appropriate strategic choices in training and in competition (Lombardozi, 2001).

The aim of the research is to define the elements characterizing the performance model that are the most important in developing a technique, tactics (Feck, 1982) and conditional plan in order to provide the coach the most appropriate knowledge (Hughes et al., 2009) to the organization of didactic coherent process for the requirements of the group-team.

## MATERIAL AND METHODS

The experimental research was conducted on two athletes of 26-27 years, height 179-18 cm and 80-82 kg, 2010 Italian champions (CN Posillipo in Naples), during eight matches of the Italian Canoe Polo Championship. Each player was informed about the purpose of the research project and both gave their informed consent for it to be conducted. The research project provided for the monitoring of heart rate (HR) during the races by teams polar heart rate monitors system (Achten et al., 2003) with a sampling rate of 5s per item. The acquisitions were subsequently analyzed with a dedicated software Polar Pro Trainer 5.2.

In order to measure the maximum heart rate ( $HR_{max}$ ), the athletes, a week before the race, performed a test load increasing to ergo paddling, Concept 2, Inc., Morrisville, NC, USA, Conconi protocol starting with a speed of 10 km/h, which was increased by 0.5 km/h every 150m, subject to the willingness of the volunteers, which was the case for both 14 km/h top speed, and during the tests the average number of paddle strokes per minute was 70 - 80 (rpm).

The heart rate measured during the race, was analyzed as a percentage of the maximum (% HR<sub>max</sub>) measured in the tests at increasing loads and divided into zones as reported by other authors (Montoye, 1996). Only the heart rate of each player was measured during the actual phases of game (Barbero, 2008). During each race the total duration of the service and the actual playing time was measured.

### **Data analysis**

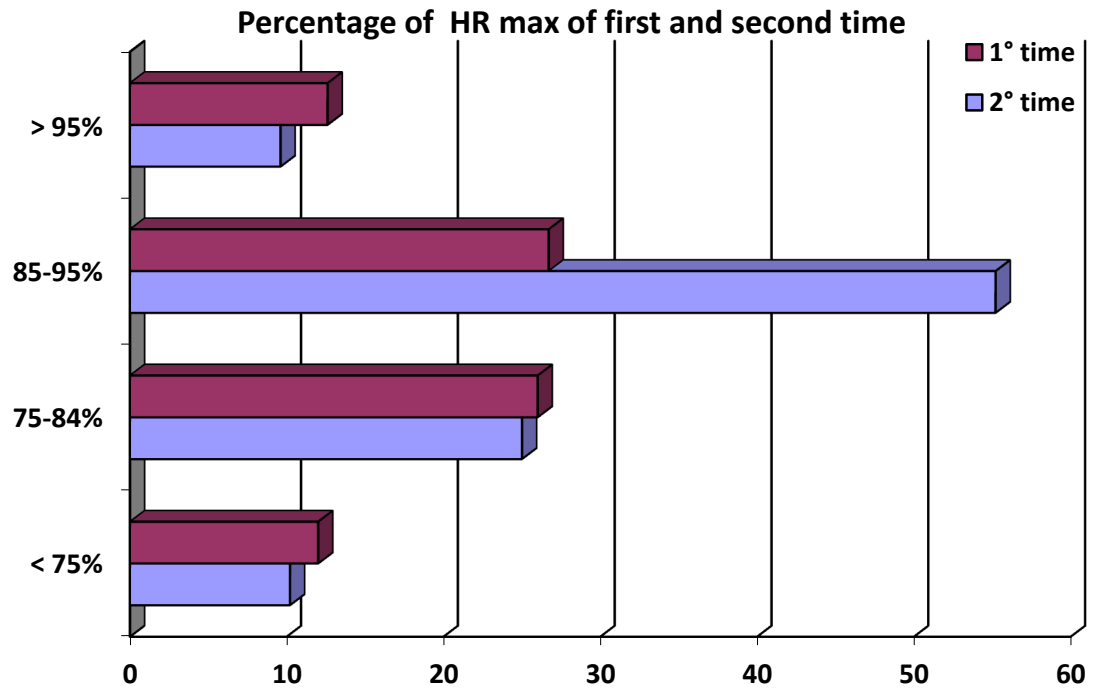
Due to the nature of the study and the small sample the data are mainly presented in descriptive terms, using means, standard deviations. All the statistical analyses were performed using Microsoft Excel 2007.

## **RESULTS**

The maximum heart rate measured during the test of increasing loads to the ergo paddling was 197 and 200 bpm respectively in subject A and B. The average heart rate, the total duration of the service, and the actual duration of the game are shown in Table 1. The % HR<sub>max</sub> divided into zones is represented in Figure 1.

**Table 1.** Average and standard deviation of the game time and percentage of HR<sub>max</sub>, average and divided into percentage areas, during 5 races of 8 players of canoe-polo.

	Race	1° time	2° time
Time of performance (s)	1326±54	654±22	673±45
Actual game time (s)	1039±183	524±105	521±156
HR <sub>max</sub> average (bpm)	167±8	166±9	170±8
percentage HR <sub>max</sub> average	84.1±3.9	83.9±4.9	85.5±4.0



**Figure 1.** Percentage of  $HR_{max}$  of first and second time, really played, average of eight races of Italian championships of canoe-polo of two observed players. Percentage of  $HR_{max}$  are divided in percentage areas.

## DISCUSSION AND CONCLUSIONS

The results in this pilot study show that canoe polo like many other team games where you use a ball is a intermittent sport with a high-metabolic intensity. The results in this pilot study show that canoe polo like many other team games where you use a ball is a intermittent sport with a high-metabolic intensity. To the best of our knowledge there are not studies that have recorded the physiological profile of canoe polo players. The % of the maximum heart rate, which expresses the metabolic activity during the race, showed a mean  $84.1 \pm 3.9$  %  $HR_{max}$ . Therefore in the canoe polo as in all time sports is highlights an intermittent strain where the anaerobic alactacid mechanism allows the development of actions which are particularly intense and the anaerobic mechanism ensures the continuous, new synthesis of this mechanism of production of energy (Colli et al., 1997).

In the in eight analyzed races, of the 22 minutes and 6 seconds of total duration of the competitions, the two players played, on average, 17 minutes and 19 seconds, and of these 8 minutes and 44 seconds in the first half and 8 minutes and 41 seconds in the second. Of the actual time, 53.2% was played at a frequency between 85 and 95% HR<sub>max</sub> and 7.9% with a frequency greater than 95% heart rate. Thus, more than half of the race (61.1%) was played at intensity above 85% HR<sub>max</sub>.

Between the first and second halves, the % of HR<sub>max</sub> between 85% HR<sub>max</sub> and 95% HR<sub>max</sub> increased by 28.5%, while it decreased by 3.1% in the >95% HR<sub>max</sub>. Since there are no specific studies, that describe the performance model of canoe polo, and in recent years there has been an increase in the number of practicing this sport (Hughes, 1997) (5), we see a real difficulty in planning specific training, that should taken into account the performance model of the player.

For this reason, this pilot study may provide some preliminary guidance on the performance model of this sport. Moreover, in view of the possibility that this sport, in order to become an Olympic sport, definitely requires further studies that analyze the significant aspects of the physiological and biomechanical performance.

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